REMARKS/ARGUMENTS

The present Amendment is in response to the Office Action having a mailing date of October 25, 2004. Claims 1-21, 23, and 24 are pending in the present Application.

In the above-identified Office Action, the Examiner rejected claims 1, 11, 12, 15, 16, 19, 20, 21, 23, and 24 under 35 U.S.C. § 103 as being unpatentable over U.S. Patent No. 6,009,374 (Urahashi) in view of Applicant's Background of the Invention (AAPA), in further view of U.S. Patent No. 5,832,400 (Takahashi). The Examiner also rejected claims 3, 5-10, and 13 under 35 U.S.C. § 103 as being unpatentable over Urahashi in view of U.S. Patent No. 6,098,005 (Tsukamoto).

In the above-identified Office Action, the Examiner rejected claims 1, 11, 12, 15, 16, 19, 20, 21, 23, and 24 under 35 U.S.C. § 103 as being obvious in light of Urahashi in view of AAPA in further view of Takahashi. In so doing, the Examiner stated:

> **Urahashi does not teach determining the performance of the transmission when a particular load on the automatic transmission system increases by a particular amount within a particular time. However, Takahashi teaches it in column 2. Urahashi does not teach adjusting a shift threshold for the automatic transmission for the positioning data if it is determined before that the performance of the automatic transmission is improved. However, applicant's background [AAPA] teaches it in page 2.**

Applicant respectfully disagrees with the Examiner's rejection of claims 1, 11, 15, 16, 19, and 20. Applicant also respectfully disagrees with the Examiner's rejection of claims 12, 23, and 24.

With respect to claims 1 and 11, claim 1 recites:

> 1. A method for controlling an automatic transmission comprising the steps of:
>
> (a) obtaining positioning data using a global positioning satellite (GPS);
>
> (b) monitoring the automatic transmission to obtain transmission data;

(c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data;

wherein step (c) determines that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time;

(d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable and if the positioning data can be obtained using the GPS, and setting the shift threshold to a preset shift threshold if the positioning data cannot be obtained using the GPS.

Similarly, claim 11 recites:

11. A system for controlling an automatic transmission comprising:

a global positioning satellite (GPS) subsystem for obtaining positioning data using a GPS satellite;

a transmission subsystem coupled to the transmission and the GPS subsystem for monitoring the automatic transmission to obtain transmission data, for learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data and for adjusting a shift threshold for the automatic transmission for the positioning data if the transmission subsystem determines that the performance of the automatic transmission is improvable; and

wherein the automatic transmission includes a preset shift threshold and wherein if the GPS subsystem is off, the transmission subsystem sets the shift threshold to the preset shift threshold;

wherein the automatic transmission subsystem determines that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time.

Thus, the method and system recited in claims 1 and 11 determine, based at least in part on GPS data, whether performance of the automatic transmission is improvable. Furthermore, one specific criterion used to determine whether the performance can be improved is whether a load on the automatic transmission system increases by a certain amount within a certain amount of time. In response, the shift threshold (the load at which the transmission automatically shifts the gear) may be adjusted. Thus, the performance of the system is improved and shifting may be smoother,

gas mileage improved, and wear and tear on the automatic transmission reduced. Specification, page 7, lines 10-13.

The cited portions of Urahashi, AAPA, and Takahashi, separately or in combination, fail to teach or suggest the method and system recited in claims 1 and 11. In particular, the cited portions of Urahashi fail to teach or suggest a method or system for controlling an automatic transmission that uses a change in a load in a particular time in order to determine whether performance can be improved and controlling the shift thresholds of the automatic transmission based upon this determination. Urahashi does describe a performance improvement that is based changing a gear *value* based upon upcoming altitude changes. Urahashi, cols. 10 and 11. For an uphill or downhill slope, Urahashi determines the altitude change and the current gear value. Urahashi, col. 10, lines 33-35 and 41-42. If the current gear is deemed unsuitable, then the system of Urahashi changes the gear value to one that is appropriate to the slope, or grade, being traversed. Urahashi, col. 10, lines 42-47. Applicant has found no mention in the cited portions of Urahashi of determining the suitability of a gear, or whether the performance of the automatic transmission could be improved, based upon a *change in a load* on the automatic transmission. The cited portions of Urahashi are devoid of mention of determining whether the performance could be improved based upon whether the change in the load occurs for a particular time. Instead, a particular geographic condition is used. Moreover, Urahashi controls the actual gear, rather than the threshold used by the automatic transmission in shifting gears. Thus, in contrast to the method and system recited in claims 1 and 11, respectively, Urahashi fails to determine whether an adjustment is necessary based upon a change in load for a particular time and fails to adjust a shift threshold instead of a gear value. Consequently, Urahashi fails to teach or suggest the method and system recited in claims 1 and 11.

The cited portion of the AAPA also fails to teach adjusting a shift threshold for the automatic transmission for positioning data if it is determined that the performance is improved by such a shift or adjusting. Further, in contrast to the Examiner's assertion, the AAPA fails to teach or suggest adjusting the shift threshold for positioning data if it is determined that the performance of the automatic transmission would be improved. Instead, page 2 of the specification (and the Background of the Invention, i.e. the cited portion of the AAPA) describes changing the shift threshold when approaching some *preset geographic body*. Specification, page 2, lines 10-20. Thus, the AAPA describes always changing the shift threshold when some *preset* type of geographic body, such as an intersection or stretch of road, is reached regardless of whether performance is improved and regardless of whether the load is changed for a particular amount of time. Thus, the AAPA is similar to Urahashi in that the AAPA adjusts the shift threshold based upon an upcoming geographic body.

The cited portions of Takahashi (col. 2) fail to remedy the defects of Urahashi. Applicant agrees that the cited portion Takahashi mentions a problem that may be addressed using the method and system recited in claims 1 and 11. The cited portion of Takahashi does describe a problem that occurs when a driving condition which may cause a change in the output of the engine lasts for a limited time. In particular, a vehicle may detect a change in load and cause a switch in the engine mode or transmission. Takahashi, col. 2, lines 16-24. However, by the time the vehicle completes the switch to a different engine or transmission mode, the changed driving condition has ended. Takahashi, col. 2, lines 44-49. However, the cited portion of Takahashi provides *no remedy* for this situation. Although the cited portion of Takahashi describes a problem, no solution is proposed in the cited portion of Takahashi. Applicant notes that other portions of Takahashi do suggest a solution. However, Takahashi's solution is apparently predictive in nature. See Takahashi, col. 3,

lines 52-61 and col. 4, line 39-col. 10, line 24. These portions of Takahashi describe estimating a *future* position of the vehicle and adjusting aspects of vehicle performance *in advance* to account for this problem. See, for example, Takahashi, col. 4, lines 60-62; col. 5, lines 1-4 and 8-12. Consequently, the cited portions of Takahashi are devoid of mention of determining whether a load on the automatic transmission system increases by a certain amount within a certain amount of time. The cited portions of Takahashi also fail to describe adjusting the shift threshold when the load on the automatic transmission increases by a certain amount within a certain amount of time. Thus, Takahashi also fails to teach or suggest the method and system recited in claims 1 and 11.

Because the cited portions of Urahashi, Takahashi, and AAPA fail to mention determining whether a load on the automatic transmission system increases by a certain amount within a certain amount of time in conjunction with adjusting the shift threshold when the load on the automatic transmission increases by a certain amount within a certain amount of time, the combination fails to teach or suggest these features. First, Applicant respectfully submits that because Urahashi, like the AAPA, accounts for certain obstacles, such as geographic bodies, Urahashi has already incorporated the teachings of the AAPA. Even assuming, *arguendo*, that the AAPA in combination with Urahashi would adjust a shift threshold, to which Applicant disagrees, the combination would not do so based upon a load lasting for a particular period of time. Instead, such a change would occur based upon an upcoming geographic body. If the teachings of the cited portions of Takahashi, AAPA, and Urahashi were combined, the problem described by Takahashi might be known to Urahashi and the AAPA. In order to solve this problem, the predictive capabilities of Takahashi, described above, might be combined with the teachings of the cited portion of Urahashi and the AAPA. Such a combination might change the gear value in advance of certain geographic obstacles (such as hills) based upon an estimate made. However, the combination would still not

adjust the shift threshold based upon the load increasing by a certain amount within a certain amount of time. Thus, Urahashi in view of AAPA in further view of Takahashi also fails to teach or suggest the method and system recited in claims 1 and 11. Accordingly, Applicant respectfully submits that claims 1 and 11 are allowable over the cited references.

Claims 15, 16, 19, 20, and 21 depend upon independent claim 11. Consequently, the arguments herein apply with full force to claims 15, 16, 19, 20, and 21. Accordingly, Applicant respectfully submits that claims 15, 16, 19, 20, and 21 are allowable over the cited references.

Applicant also respectfully disagrees with the Examiner's rejection of claim 12 as being unpatentable over Urahashi in view of AAPA and Takahashi. Claim 12 recites:

> 12. A system for controlling an automatic transmission comprising:
> a global positioning satellite (GPS) subsystem for obtaining positioning data using a GPS satellite;
> a transmission subsystem coupled to the transmission and the GPS subsystem for monitoring the automatic transmission to obtain transmission data, for learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data and for adjusting a shift threshold for the automatic transmission for the positioning data the transmission subsystem determines that the performance of the automatic transmission is improvable; and
> wherein the transmission subsystem further determines whether a one-time event has occurred and ensures that the automatic transmission is at a factory setting if the one-time event has occurred.

Thus, the system in claim 12 not only adjusts the shift threshold for improved performance, but is also capable of accounting for one-time events. For example, the system recited in claim 12 might account for unusually light or heavy loads, a trailer being towed, or strong head or tail winds that may adversely affect performance of the vehicle. Specification, page 8, lines 5-11. Thus, even upon the occurrence of a one-time event, the system in claim 12 can improve the performance of the automatic transmission.

In contrast, the cited portion of Urahashi fails to teach or suggest a system, which accounts for one-time effects. The cited portions of Urahashi are also devoid of mention of the desirability of possibility of one-time effects, such as winds, loads, or trailers being towed, being accounted for in any manner. Moreover, as described above, Urahashi adjust a gear value, rather than the shift threshold. Thus, Urahashi fails to teach or suggest the system recited in claim 12.

The cited portions of Takahashi fail to remedy the defects of Urahashi. As described above, the cited portions of Takahashi merely state a problem. The cited portion of Takahashi is also devoid of mention of one-time effects, such as winds, loads, or trailers being towed. Consequently, any combination of Urahashi and Takahashi would fail to teach or suggest this feature. Instead, as described above, the combination of the cited portions of Urahashi and the predictive capabilities of Takahashi would simply estimate the appropriate engine and transmission setting. Consequently, the combination of Urahashi and Takahashi fail to teach or suggest the method recited in claim 12. Accordingly, Applicant respectfully submits that claim 12 is allowable over the cited references.

The Examiner did not explicitly state the reasons for rejection claim 2. However, claim 2 recites:

> 2. A method for controlling an automatic transmission comprising the steps of:
>
> (a) obtaining positioning data using a global positioning satellite (GPS);
>
> (b) monitoring the automatic transmission to obtain transmission data;
>
> (c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data;
>
> (d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable;
>
> (e) determining whether a one-time event has occurred; and
>
> (f) ensuring that the automatic transmission is at a factory setting if the one-time event has occurred.

Thus, claim 2 recites a method for controlling an automatic transmission that is analogous to the system of claim 12. Thus, the reasoning above with respect to claim 12 applies with full force to claim 2. Accordingly, Applicant respectfully submits that claim 2 is allowable over the cited references.

Applicant also respectfully disagrees with the Examiner's rejection of claims 23-24. Claim 23 recites:

> 23. A method for controlling an automatic transmission comprising the steps of:
> (a) obtaining positioning data using a global positioning satellite (GPS);
> (b) monitoring the automatic transmission to obtain transmission data;
> (c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data, the performance of the automatic transmission being improved by a shift threshold adjustment if the automatic transmission performs an unnecessary shift, the unnecessary shift being a shift that occurs for less than or equal to a particular amount of time; and
> (d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable.

Claim 24 recites:

> 24. A system for controlling an automatic transmission comprising:
> a global positioning satellite (GPS) subsystem for obtaining positioning data using a GPS satellite;
> a transmission subsystem coupled to the transmission and the GPS subsystem for monitoring the automatic transmission to obtain transmission data, for learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data, the performance of the automatic transmission being improved by a shift threshold adjustment if the automatic transmission performs an unnecessary shift, the unnecessary shift being a shift that occurs for less than or equal to a particular amount of time, and for adjusting a shift threshold for the automatic transmission for the positioning data if the performance of the automatic transmission can be improved.

Thus, claims 23 and 24 recite a method and system, respectively, which determine that the performance is improvable is an unnecessary shift has occurred. In claims 23-24, an unnecessary

shift is defined as a shift that occurs for less than or equal to a particular amount of time. Thus, unnecessary shifts may be reduced or avoided, thereby improving performance.

In contrast, Applicant can find no mention the cited portions of Urahashi of determining whether there is an unnecessary shift. Moreover, the cited portions of Urahashi do not indicate that the performance of an unnecessary shift, as defined as a shift for less than a particular period of time, might be used to improve performance. Furthermore, as discussed above, Urahashi describes changing the gear value, not the shift threshold. Consequently, Urahashi does not teach or suggest the method and system recited in claims 23 and 24.

The cited portion of AAPA fails to remedy the defects of Urahashi. As discussed above, the cited portion of AAPA shifts the shift threshold based upon an upcoming geographic body. However, the cited portion of AAPA still does not describe determining that performance is improvable when an unnecessary shift of less than or equal to a particular amount of time has occurred. Thus, any combination of Urahashi and the AAPA would also fail to teach or suggest this feature.

The cited portion of Takahashi fails to remedy the defects of Urahashi in view of AAPA. As discussed above, the cited portion of Takahashi poses a problem, but provides no solution. The predictive capabilities described in Takahashi could be used to set transmission values in advance. However, the cited portion of Takahashi still does not describe determining that performance is improvable when an unnecessary shift of less than or equal to a particular amount of time has occurred. Thus, any combination of Urahashi, AAPA, and Takahashi would also fail to teach or suggest this feature. Accordingly, Applicant respectfully submits that claims 23-24 are allowable over the cited references.

The Examiner did not explicitly state the reasons for rejecting claim 4. Claim 4 recites:

4. A method for controlling an automatic transmission comprising the steps of:

(a) obtaining positioning data using a global positioning satellite (GPS);

(b) monitoring the automatic transmission to obtain transmission data;

(c) learning whether performance of the automatic transmission is improvable utilizing the positioning data and the transmission data, the learning step (c) further including the step of

(c1) determining that the performance is improvable if the automatic transmission performs an unnecessary shift a particular number of times, the unnecessary shift being a shift that occurs for less than or equal to a particular amount of time; and

(d) adjusting a shift threshold for the automatic transmission for the positioning data if step (c) determines that the performance of the automatic transmission is improvable.

Claim 4 is thus analogous to claims 23-24. Consequently, the arguments herein apply with full force to claims 23-24. Accordingly, Applicant respectfully submits claim 4 is allowable over the cited references.

In the above-identified Office Action, the Examiner also rejected claims 3, 5-10, and 13 under 35 U.S.C. § 103 as being unpatentable over Urahashi in view of Tsukamoto.

Claims 3 and 5-10 depend upon independent claim 1. Similarly, claim 13 depends upon independent claim 11. Consequently, the arguments herein apply with full force to claims 3, 5-10, and 13. In particular, Urahashi fails to teach or suggest a method or system for controlling an automatic transmission that uses a change in a load in a particular time in order to determine whether performance can be improved and controlling the automatic transmission based upon this determination.

Tsukamoto fails to remedy the defects of Urahashi. Tsukamoto describes a system which also controls the transmission of a vehicle based upon the vehicles surroundings, such as upcoming intersections. Tsukamoto, Abstract. However, Applicant has found no mention in the cited

portion of Tsukamoto of determining that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time. The cited portions of Tsukamoto thus also fail to mention adjusting a shift threshold based upon such a determination. Consequently, Tsukamoto fails to remedy the defects of Urahashi. Stated differently, if the teachings of Tsukamoto were combined with those of Urahashi, the combination might use the vehicle surroundings, such as upcoming intersections, in addition to the grade or slope to determine whether and how to adjust the gears. However, because both Tsukamoto and Urahashi fail to teach or suggest determining that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time, the combination would also fail to teach or suggest this feature. Because Urahashi in view of Tsukamoto fail to teach or suggest determining that the performance of the automatic transmission is improvable when a particular load on the automatic transmission system increases by a particular amount within a particular time, Urahashi in view of Tsukamoto fails to teach or suggest the methods and system recited in claims 3, 5-10 and 13. Accordingly, Applicant respectfully submits that claims 3, 5-10, and 13 are allowable over the cited references.

Accordingly, for the above-mentioned reasons, Applicant respectfully submits that the claims are allowable over the cited reference. Consequently, Applicant respectfully requests reconsideration and allowance of the claims as currently presented.

Applicant's attorney believes that this application is in condition for allowance. Should any unresolved issues remain, Examiner is invited to call Applicant's attorney at the telephone number indicated below.

Respectfully submitted,
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